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| 10/603,514 | 06/24/2003 | Joel C. Kent | ELG055 US1 (2024773-7032) | 3231 |
| 7590 10/19/2005 | | | EXAMINER | |
| Tyco Electronics Corporation Attn: Michael Aronoff MS R20/2B 307 Constitution Drive Menlo Park, CA 94025-1164 | | | PERVAN, MICHAEL | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2677 | |
| DATE MAILED: 10/19/2005 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9 and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kushida et al. (US 4,677,336) in view of Adler (US 4,746,914).

In regards to claim 1, Kushida discloses in Figure 1B an acoustic substrate 21 having a surface, an acoustic transducer 24 and an acoustically diffractive grating 22 disposed between the substrate and the transducer, the diffractive grating coupling acoustic energy within the acoustic transducer to an acoustic wave propagating along the surface of the substrate (see Figure 1B; col. 3, lines 35-39 and col. 4, lines 38-43).

In regards to claim 11 Kushida discloses in Figure 1B an acoustic transducer 24 and an acoustically diffractive grating 22 disposed between the substrate and the transducer, the diffractive grating coupling acoustic energy within the acoustic transducer 24 to an acoustic wave propagating (acoustic wave could propagate along a

horizontal and vertical direction) along the surface of the substrate (see Figure 1B; col. 3, lines 35-39 and col. 4, lines 38-43).

In regards to claims 1 and 11, Kushida does not disclose a touch sensor or touch display device or a transparent acoustic substrate. Adler discloses a touch sensor and a touch display device (col. 3, lines 60-67) and a transparent acoustic substrate (see Figures 1 and 2; col. 4, lines 5-8 lines 15-20, 53-68 and col. 5, lines 1-18). It would have been obvious at the time of invention to modify Kushida with the teaching of Adler since graphics or other information may be ordered up for display from a controller in response to an operator's command (col. 4, lines 5-8).

In regards to claims 2 and 12, Kushida discloses in Figure 2F the diffractive grating comprising an array of parallel elements (the inclines going from left to right are parallel with each other and the inclines going from right to left are parallel with each other).

In regards to claims 3 and 13, Kushida does not disclose the elements having a pitch equal to the wavelength of the acoustic wave. Adler discloses the elements having a pitch equal to the wavelength of the acoustic wave (col. 8, lines 39-42). It would have been obvious at the time of invention to modify Kushida with the teachings of Adler since acoustic wave energy would be available for reflection at the end of the array (col.8, lines 44-46) and the pitch equal to the wavelength of the acoustic wave would be better for applying in a touch sensor to determine the touching position.

In regards to claims 4 and 14, Kushida discloses in Figure 1B the diffractive grating 22 is structurally distinct from the transducer 24 and the substrate 21 (each is its own separate entity combined in layers).

In regards to claims 5 and 15, Kushida discloses in Figure 1B the diffractive grating 22 structurally integrated with the substrate 21.

In regards to claims 6 and 16, Kushida discloses in Figure 1B the diffractive grating 22 is structurally integrated with the transducer 24 by way of 23.

In regards to claims 7 and 17, Kushida discloses in Figure 5B another acoustic transducer (the area of 14) and another acoustically diffractive grating 12 disposed between the substrate 11 and the transducer 14, the diffractive grating 12 coupling acoustic energy within the acoustic transducer to an acoustic wave propagating along the surface of the substrate.

In regards to claims 8 and 18, Kushida discloses in Figure 1B a substrate with a substantially flat surface (the bottom of 21).

In regards to claims 9 and 19, Kushida discloses the transducer comprising a piezoelectric element (col. 2, lines 38-39).

Allowable Subject Matter

3. Claims 10 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art (Nakagawa US 6,392,167) is deemed relevant since it applies the use of a reflective grating such that the waves moving towards the grating and the waves reflected from the grating are 180 degrees out of phase from each other.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pervan whose telephone number is (571) 272-0910. The examiner can normally be reached on Monday - Friday between 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

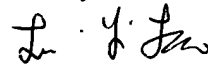
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MVP
Sept. 21, 2005

Lun-Yi Lao
Primary Examiner

A handwritten signature in black ink, appearing to read 'L. Y. Lao', written in a cursive style.